<u>Amendments to the Specification</u>:

Please replace paragraph **[003]** with the following rewritten paragraph:

[003] Various attempts at remedying such problems have been performed. An example is U.S. Patent No. 5,303,313 to Mark et al., which provides a method of image enhancement through use of a compressed representative image. Another example is described in J.D. Hobby et al., "Enhancing degraded document images via bitmap clustering and averaging," ICDAR '97: *Fourth Int. Conference on Document Analysis and Recognition, 1997.* Both Patent No. 5,303,313 and the Hobby article provides a basic strategy. In Hobby, the strategy includes: clustering bitmaps, computing representatives for each cluster, and then assembling an output. For initial clustering, Hobby uses a feature-based approach. To ~~computer~~compute cluster representatives, Hobby uses a method that aligns the scans by centroids of black pixels, sums the scans to give a histogram, smooths the histogram to give a gray-level representative, and determines a polygonal outline that stays within a certain gray "tube" yet has a minimum number of inflection points. This computation method is described in J.D. Hobby and H.S. Baird, "Degraded Character Image Restoration", *Proc. 5th Annual Symp. On Document Analysis and Image Retrieval,* 1996, pps. 177-189. To align and form the assembled output, Hobby appears to use the alignment computed when computing cluster representatives. Patent No. 5,303,313 does not perform any reclustering, and instead is concerned primarily with compression.

Please replace paragraph **[0049]** with the following rewritten paragraph:

[0049] In one exemplary embodiment of this invention, the image improvement circuit or routine 240 is able to initially cluster portions of the bitmap of the received image data. From this data, the image improvement circuit or routine 240 determines the representative images for each of the clusters. Initial clustering is preferably attained using a Hausdorff matching method. A suitable example of such can be found in U.S. Patent No.

5,835,638 to Rucklidge et al., the disclosure of which is incorporated herein by reference in its entirety. See also the DigiPaper article ~~at http://www.cs.cornell.edu/digipaper~~. Other methods of initial clustering are known and could be substituted. An exemplary other known method of determining the initial clustering is described in J.D. Hobby et al., "Enhancing degraded document images via bitmap clustering and averaging," ICDAR '97: *Fourth Int. Conference on Document Analysis and Recognition, 1997.* However, this latter method may be less reliable.

Please replace paragraph **[0059]** with the following rewritten paragraph:

[0059] In one exemplary embodiment of the methods and systems according to this invention, the representative determining portion 244 of the image improvement circuit or routine 240 uses an *a priori* (prior) probability distribution on the bitmap portions to determine the most likely representative image of each cluster of portions. The *a priori* probability distribution is based on "chain codes". A "chain code" is a sequence of North, South, East and West directions taken while traversing the boundary of a connected component. For more information on chain codes, see ~~co-pending Appl. No. 09/749,690, filed December 28, 2000~~ U.S. Patent No. 6,690,821 to Goldberg et al., the subject matter of which is incorporated herein in its entirety.

Please replace paragraph **[0072]** with the following rewritten paragraph:

[0072] Generally, this initial clustering using the Hausdorff method uses a distance measuring technique that is a measure for comparing point sets that can be used to compare binary images. Further details of initial clustering using this Hausdorff matching method can be found in U.S. Patent No. 5,835,638 to Rucklidge et al. and the DigiPaper article (~~http://www.cs.cornell.edu/digipaper~~), the disclosures of which are incorporated herein by reference in their entirety.